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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/667,575	09/22/2003	Thiemo Marx	PO-7791/LcA 36,167	9646

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LANXESS CORPORATION
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EXAMINER

VIJAYAKUMAR, KALLAMBELLA M

ART UNIT	PAPER NUMBER
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1751

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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Office Action Summary

Application No.

10/667,575

Applicant(s)

MARX ET AL.

Examiner

Kallambella Vijayakumar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11/17/2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

- Applicant's arguments with respect to claims filed 11/17/2006 have been fully considered, they overcome the rejections over Womelsdorf et al (WO 00/50503) and Womelsdorf et al (US Patent 6,710,091) cited in the last office action, but are moot in view of the new ground(s) of rejection.
- Claims 1 and 3 were amended. Claim-2 was cancelled. Claims 1 and 3-5 are currently pending with the application.

Claim Rejections - 35 USC § 102

Claim Rejections - 35 USC § 103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

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such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459

(1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

1. Claims 1 and 3-5 are rejected under 35 U.S.C. 102(b) as being anticipated by, or under 35

U.S.C. 103(a) as obvious over Takeda et al (US 6,200,680; PTO-892).

Takeda et al teach the composition and a method of making the composition comprising a dispersion of ZnO particles with a particle size of 0.005–0.1 micron <5-100 nm> dispersed in aliphatic monohydric alcohols such as n-butanol and further containing an amino-alcohol additive/dispersant such as monoethanolamine or diethanolamine (Cl-20, Ln-34-40; Cl-24, Ln 37-44) that meets the limitation of instant claim-1. The prior art does not teach the addition of a chloride or water in the composition that meets the limitation of a “water-free” and “halogen free” in the claims. Takeda et al further teach redispersion of ZnO particles in a solvent other than the dispersing media in a solvent such as alcohol, and the alcohols include monohydric alcohols such as ethanol and propanol (Cl-24, Ln 61-Cl-25, Ln 13) that meets the limitation of claim-3. With regard to claims 4-5, the prior art teaches a coating composition and a molded article containing the ZnO dispersion (Cl-11, Ln 15-40). With regard to the product by process limitation “redispersible” in the claims 1 and 3, the examiner asserts that the prior art composition will be either same or substantially the same as that obtained by the redispersion in

the instant claims. With regard to the product obtained from a product by process composition in claims 4-5, the prior art products will be either same or substantially the same as that to that obtained by the redispersion of the ZnO claimed by the applicant's. When the reference teaches a product that appears to be the same as, the product set forth in a product-by-process claim although produced by a different process, the claim is not patentable. See *In re Marosi*, 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983) And *In re Thorpe*, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). See also MPEP §2113. All the limitations of the instant claims are met.

The reference is anticipatory.

In the alternative that the disclosure by Takeda et al be insufficient to arrive at the limitations of the instant claims by the applicants, it would be obvious to a person of ordinary skilled in the art to make a dispersion of ZnO particles including redispersing a ZnO concentrate in an aliphatic alcohol solvent containing an amino alcohol additive as choice of design of making the solution with reasonable expectation of success, because Takeda teaches that the solvent for dispersion can be selected appropriately according to the end use.

2. Claims 1, 3 and 5 are rejected under 35 U.S.C. 103(a) as being obvious over Hagiwara et al (US 5,672,427, PTO-892).

Hagiwara et al teaches dispersing ZnO particles with particle size up to 0.2 microns in one or more organic solvents that include alcohols such as ethanol, propanol and butanol, (Cl-2, Ln 48, 65-66) and an amine such as monoethanolamine (amino-alcohol) (Cl-3, Ln 3-5, 16) using shaking or ultrasonic methods to treat the oxide particles with the organic solvent. The particle size of the ZnO was preferably up to 0.2 micron (200 nm) that overlaps with the claimed particle

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size in the claims. The prior art does not teach the addition of a chloride or water in the composition that meets the limitation of a “water-free” and “halogen free” in the claims.

The prior art does not provide an example containing a aliphatic alcohol and monoethanolamine.

However, it would have been obvious to a person of ordinary skilled in the art to add more than one organic solvents from the list of Hagiwara including a combination of ethanol and monoethanolamine, that are common solvents as choice of design for treating the ZnO with reasonable expectation of success because prior art is suggestive of these solvents, and the instant claimed composition would have been obvious. With regard to the process claim-3, the prior art teaches mixing components similar to those claimed by the applicants. The dispersion of ZnO particles meet the limitation of redispersible in the claims 1 and 3. With regard to the product obtained from a product by process composition in claim-5, the prior art teaches a coating composition that is similar to that obtained by the redispersion of the ZnO claimed by the applicant's. When the reference teaches a product that appears to be the same as, or an obvious variant of the product set forth in a product-by-process claim although produced by a different process, the claim is not patentable. See *In re Marosi*, 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983) And *In re Thorpe*, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). See also MPEP §2113.

3. Claim 4 is rejected under 35 U.S.C. 103(a) as obvious over Hagiwara et al (US 5,672,427) in view of Takeda et al (US 6,200,680).

The disclosure on the composition and making of the ZnO dispersions as set forth in rejection-2 under 35 USC 103(a) is herein incorporated.

The prior art fails to teach a molded article using the dispersion of ZnO, however teaches its use in forming shaped articles or sheet.

However it would be obvious to a person of ordinary skilled in the art to have used ZnO dispersions of Hagiwara et al in the forming the shaped article or sheet by molding with reasonable expectation of success, because prior art is suggestive of such an use (Cl-1, Ln 26-32) and forming shaped products by molding was well known in the art at the time of disclosure by the applicants (See Takeda et al: Cl-11, Ln 37-40). When the reference teaches a product that appears to be the same as, or an obvious variant of, the product set forth in a product-by-process claim although produced by a different process, the claim is not patentable. See *In re Marosi*, 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983) And *In re Thorpe*, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). See also MPEP §2113.

4. Claims 1 and 3-5 are rejected under 35 U.S.C. 103(a) as being obvious over Womelsdorf et al (WO 00/50503).

The US Patent 6,710,091 issued to Womelsdorf et al is being used as the English Translation of the WO 00/50503 in the present rejection.

The prior art teaches a dispersion/sol containing nanoparticles of ZnO with an average particle diameter of less than 15 nm formed by redispersing the ZnO gel in an organic solvents and further containing surface modifying compound such as triethanolamine. The prior art teaches making the ZnO particles by precipitating it from Zn salts dissolved in methanol with KOH in methanol, removing the supernatant liquid, further washing the precipitate by reslurrying it in additional methanol and removing the supernatant liquid to obtain a wet gel containing ZnO in

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methanol, and followed by redispersing the wet gel in an organic solvent, wherein a portion of the methanol solvent is kept with the gel and in the subsequent dispersion. (Abstract, Col-3, Ln 5-10; Col-5, Ln 10-21, 39-48, Col-5, Example-1).

The prior art fails to teach the addition of C2-C6 monoalcohol in making the ZnO precipitate.

It would be obvious to a person of ordinary skilled in the art to substitute the methanol in the with ethanol or propanol or butanol as functional equivalents in making of the ZnO gel with reasonable expectation of success, because of their low toxicity and these are homologs, and homologs (compounds differing regularly by the successive addition of the same chemical group, e.g., by -CH₂- groups) are generally of sufficiently close structural similarity that there is a presumed expectation that such compounds possess similar properties. In re Wilder, 563 F.2d 457, 195 USPQ 426 (CCPA 1977), and an organic sol made by redispersion of such a gel will contain a portion of corresponding alcohol used in the process that will meet the limitation of C2-C6 alcohols in the instant claim.

With regard to claims 4-5, the prior art further teaches using the ZnO in the matrix modification of the polymers, paints and coatings, and vulcanization of rubbers and lattices (C-5, Ln 45-48), and it would have been obvious to a person of ordinary skilled in the art to have used the composition in coating and molded products. When the reference teaches a product that appears to be the same as, or an obvious variant of, the product set forth in a product-by-process claim although produced by a different process, the claim is not patentable. See In re Marosi, 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983) And In re Thorpe, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). See also MPEP §2113.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

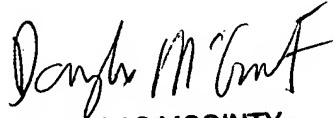
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kallambella Vijayakumar whose telephone number is 571-272-1324. The examiner can normally be reached on 8.30-6.00 Mon-Thu, 8.30-5.00 Alt Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas McGinty can be reached on 571-272-1029. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KMV
February 16, 2007.


DOUGLAS MCGINTY
SUPERVISORY PATENT EXAMINER

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